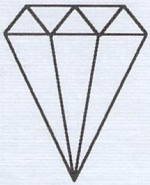
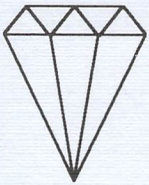




The

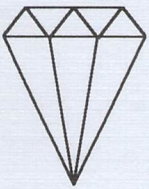
Ultimate

Hard Disk

Backup & Restore

Utility!!

Diamond Back II



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Diamond Back II

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1.0 Getting Started 1

1.1 Introduction 1

1.2 Backup Basics 3

2.0 File Backup 4

2.1 Select Backup Paths 5

2.2 Include & Exclude Wildcard Search Masks 7

2.3 Disk Utilities 8

2.4 Backup Options 10

3.0 Image Backup 20

3.1 GEM Image Backup 20

3.2 Spectre Image Backup 21

4.0 Restoring Your Hard Disk 22

4.1 Full Restore 23

4.2 Partial Restore 25

5.0 Tricks and Tips 30

6.0 Utility Programs 34

7.0 Technical Assistance 34

8.0 Software License Agreement 39

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1.0. Getting Started

1.1 Introduction

Congratulations, you have just purchased the most complete hard disk backup and restore program available for the Atari ST. Diamond Back II provides a TRUE file backup at image backup speeds with more power and flexibility then all of the other backup programs combined. Here are just a few of the features you will find in Diamond Back II:

- Extremely FAST! In fact, the fastest!
- EASY to use 100% GEM user interface with on line help
- Backup/Restore ANY number of drive partitions, directory paths, single directories, or specific files in a single pass
- Flexible creation of backup sets from different paths or partitions
- Wild card masks to include or exclude files may be different for each path
- Incremental backups by date/time or archive bit(TOS 1.4)
- Load/Save custom backup configurations
- Preformatted disks do not have to be the same type
- File compression and encryption available
- Disk usage estimation, Disk statistics, and assorted Disk Utilities
- Backup to floppies or other partitions
- Flexible disk formatting options
- Automatic drive switching during all program functions
- Very Flexible Full or Partial restore options
- Restore original directory tree or specify new structure
- Create file listings during the backup or from floppy disks or selected paths
- Create CRC validation logs integrated into backup and restore or from Hard Disk or Floppy files

Extra Special Features:

- Backup and Restore Spectre partitions !!!
- Full Support for High Density 1.44+ meg floppies !!!
- Intelligent Image backup that only backs up sectors that contain data and restore images to different size partitions !!!
- Incredibly FAST Hard disk to Hard disk copies !!!
- State of the Art file compression speed !!!

Diamond Back II will allow you to maintain a secure backup of your hard disk and provide a flexible and efficient way to restore files to your hard disk. Please take the time to fill out and return your owner registration card. Your registration will be required to obtain continuing product support.

Before you can begin to use Diamond Back II, you must complete the program installation procedure. Being sure to leave the disk write enabled, Place your original disk in floppy disk A and double-click on **INSTALL.PRG**. The program installation main menu will ask you to answer a few simple questions(Name, Address, etc..). When you have completed the questions then select **INSTALL** from the program menu. Please be sure to check the accuracy of the entered information because some of the registration information(like your Name) will be displayed on the main program menu.

To start running Diamond Back II, double click on **DIAMOND.PRG**. The primary program functions are accessed through the main menu. These functions are: **FILE BACKUP, IMAGE BACKUP, FULL RESTORE, PARTIAL RESTORE**, and **EXIT**. To select an option, point the mouse cursor at the appropriate button and click the left mouse button.

If you want to backup files from your hard disk, select FILE BACKUP. If you want an Image backup of either a GEM or Spectre partition, select IMAGE BACKUP. Select FULL

RESTORE if you want to restore an entire GEM FILE, GEM IMAGE, or SPECTRE IMAGE backup to your hard disk. Select PARTIAL RESTORE if you want to restore part of a GEM FILE backup to your hard disk, and select EXIT to terminate Diamond Back II. TOS 1.0 users should read page 33 and note the importance of always using FOLDRXXX.PRG.

1.2 Backup Basics

The proper maintenance of your hard disk begins with regular hard disk backups. The critical importance of backups is often overlooked. This generally results in backups that fail to be executed. You only have to lose important data once(e.g hard disk problem or accidental erasure) to make the importance of regular backup VERY CLEAR.

So how often do you have to back your hard disk up? How often you have to back up is generally determined by how often your files change. Which files change daily, weekly, monthly, or even more frequently? How serious would it be if you lost any data? Figure out what files almost never change like applications or font files. You may want to back these up less frequently. Make a tentative backup schedule and then imagine the worst case scenario to see if you can live with your proposed schedule .

Once you choose what needs to be backed up and how often you need to do it, you can choose one of two basic backup strategies: Incremental Backup and Full Backup. An **Incremental Backup** strategy requires you to back up every file occasionally(say once a week), but most days you only backup the files that have changed since the last full backup. This approach saves time and often storage space, but can lead to fragmented backups if too much time elapses between full backups. A **Full Backup** strategy requires you to backup every file each time. This takes longer and requires more storage space, but guarantees completeness and continuity of you backups.

No matter how often you backup, if you have only one copy of your backed up files and something goes wrong with that copy, you're out of luck should need to restore the data. Performing generational backups overcomes this problem as well as providing a longer history coverage of your backups to augment a backups archival utility. With a generational backup strategy, you keep the last three full backups so you always have

the last three generations of your data. Here's how to set up a generational backup schedule. Say you do weekly full backups. Get a log book and three groups of disks large enough to cover your backup requirements and label them A, B, and C. Also, enter three columns in the log book labeled A, B, and C. On the first week perform your backup using the A disks and record the backup date in the A column of your log book. On the second week perform your backup using the B disks and record the backup date in the B column of your log book, and the same for C on the third week. You now have three full backups of your data that represent three generations of your hard disk. The oldest A is the grandparent, B is the parent, and C is the child. On the forth week, reuse the disks from group A and record the backup date in the A column of you log. Continue to rotate the disk groups, reusing the disks from the oldest backup. When you need to restore data, use the most recent version. If that backup is for some reason defective, then you have two complete backups to fall back on. We personally use and highly recommend the generational backup strategy.

So now you have your data backed up safe and secure. Or is it? If your backup data isn't stored in a safe place then it isn't safe. At least one full copy of your data should be stored off site, preferably in a fire-safe compartment. If you are using a generational strategy, then the grandparent should be stored off site, replaced by the parent at each backup. Always write protect your backup disks and store them in a cool, dry place protected from magnetic fields.

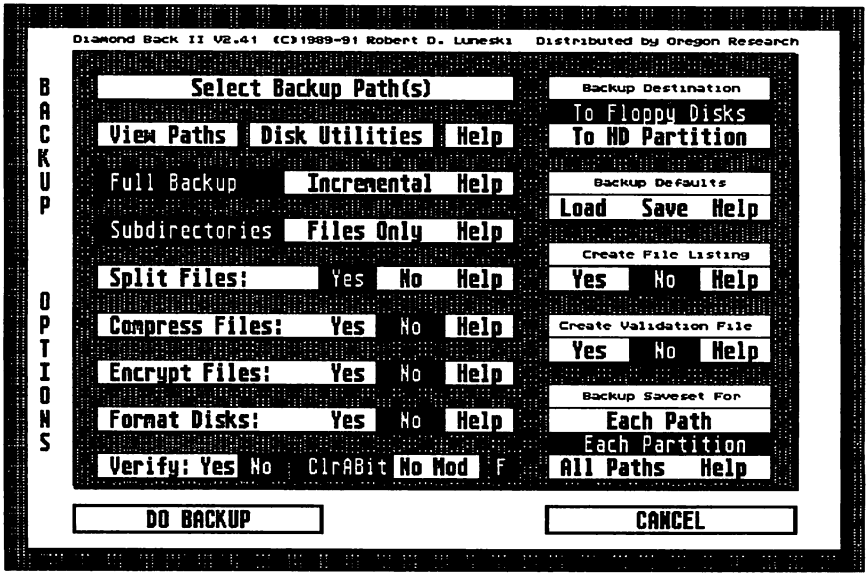
Backing up is one of those procedures where the only route to success is religious adherence to the plan. Devise a workable strategy, streamline the process as much as possible, and then follow your plan to the letter! Diamond Back II is designed specifically to make backups so easy and fast to run that you actually follow your plan and do them on a regular basis.

2.0 File Backup

The fundamental unit of information storage on your hard disk is the file. Diamond Back II provides you with tremendous power and flexibility in selecting what files you want to back up and even what files you don't. The fundamental unit of storage in Diamond Back II is also the file. Your data from a GEM file

backup is in precisely the same form as it appears on your hard disk. Therefore, you can look at, execute, and copy files directly from your backups just as you can on your hard disk. However, to maintain the integrity and completeness of your file backups, you should not modify your backup disks by hand.

The following is a description of each function contained in the BACKUP OPTIONS menu, shown below, and the sub menus used to set up a file backup.

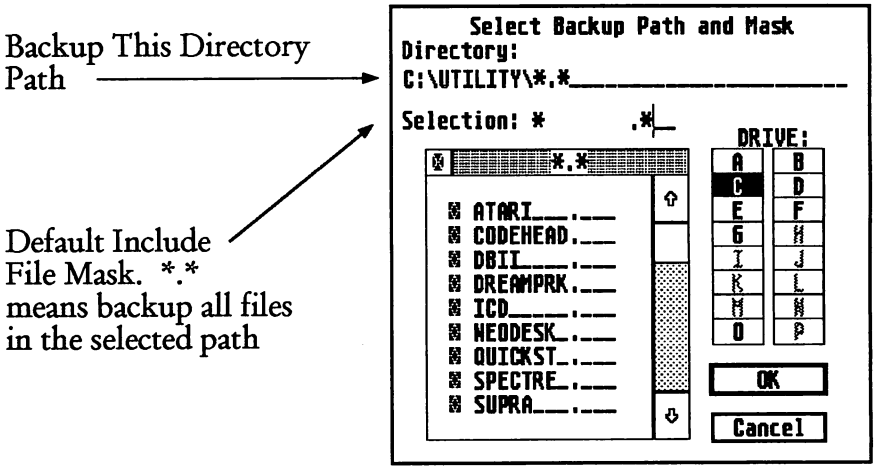


2.1 Select Backup Paths

This button is used to take you to the path selection sub menu. In this area of the program you select which hard disk partitions, folders, or files you want to backup. Several shortcut buttons have been provided for your convenience. If you are doing a complete backup of your hard drive, you can click on **Select All** and all partitions, folders, and files will be selected to be backed up. You may choose the **Deselect All** button to cancel all the selected backup paths. The **View Paths** option will display all your selected backup paths and masks.

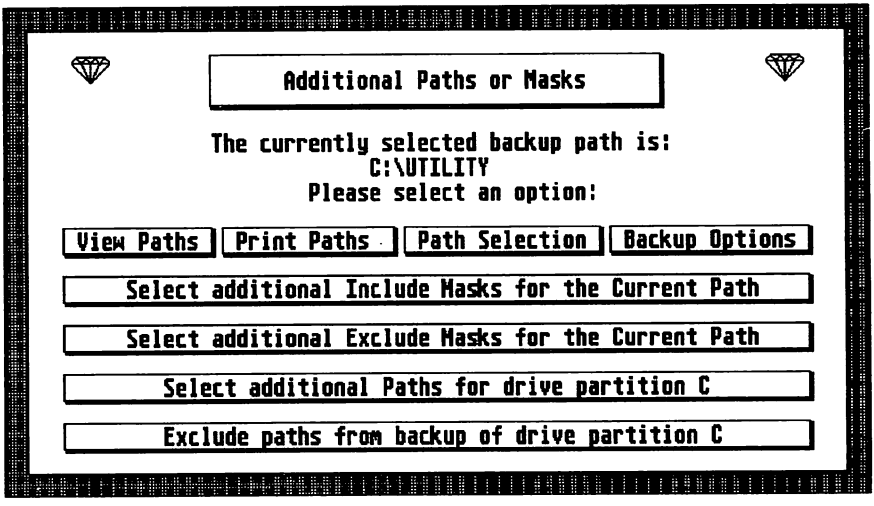
To specify your backup paths for each drive individually, you may select one of the drive partition buttons C-P. After selecting one of these buttons, a standard GEM file selector will

appear allowing you to select specific directory paths to be included in the backup. The path to be included in the backup is the path that appears on the Directory: line of the GEM file selector dialog when OK is selected.



If you want a complete backup of the selected partition, simply select OK when the GEM file selector appears. If you only want to backup files in a specific path, select the desired path from the GEM file selector and click on OK when the desired path appears on the Directory line.

After you have selected OK, the Additional Paths or Masks sub menu will appear.


Additional Paths or Masks
The currently selected backup path is:
C:\UTILITY
Please select an option:
View Paths
Print Paths
Path Selection
Backup Options
Select additional Include Masks for the Current Path
Select additional Exclude Masks for the Current Path
Select additional Paths for drive partition C
Exclude paths from backup of drive partition C

The Additional Paths or Masks sub menu allows you to view, add to, or modify the selected backup paths and masks. The following options are available:

Backup Options Menu:

Returns you to the main file backup menu.

Path Selection Menu:

Use this to select backup directory paths, or files on other partitions.

View Paths and Print Paths:

Select these options to view or print all your selected backup paths and masks respectively.

Select Additional Paths for Drive Partition:

You can specify additional paths to be backed up from the current partition. You may specify an unlimited number of specific paths on each drive partition.

Exclude Paths from Drive Partition:

This useful option allows you to exclude entire paths from a backup. For example, if your directory C:\TEMP contains only temporary files, you can tell Diamond Back II to back up everything but the files in C:\TEMP. You may specify an unlimited number of specific paths to exclude from the backup.

2.2 Include and Exclude Wild Card Masks

Before going over the next two options, you will need to know how to use wild cards. The two standard wild cards on the Atari ST are * and ?. The * appearing in a wild card search mask will backup all files containing a character string in the *'s position. The ? appearing in a wild card search mask will backup all files containing a single character in the ?'s position. To specify a wild card mask for a path, type in the desired wild card mask on the **Selection:** line of the GEM file selector dialog.

For example, if you wanted to backup all files with a .PI1

extension in the GRAPHICS folder on drive partition C, you would enter *.PI1 on the **Selection:** line when C:\GRAPHICS appears on the **Directory:** line. If you had wanted to backup all files with extension of PI1, PI2, or PI3 you would enter *.PI? on the **Selection:** line when C:\GRAPHICS appeared on the **Directory:** line. You may also designate the wild card search mask on the **Directory:** line. Wild card search masks can be different for each specific directory path selected.

Diamond Back II also allows you to use Unix style wild cards. These include [abc], [a-k], and [!abc]. [abc] means include every file 'a', 'b', or 'c' in that position; [a-k] means to include every file with the letters 'a' through 'k' in that position; while [!abc] means include every file except those with 'a', 'b', or 'c' in that position.

EXAMPLE: *.[ch] backs up all files *.c and *.h. You can use wildcards in both include and exclude masks.

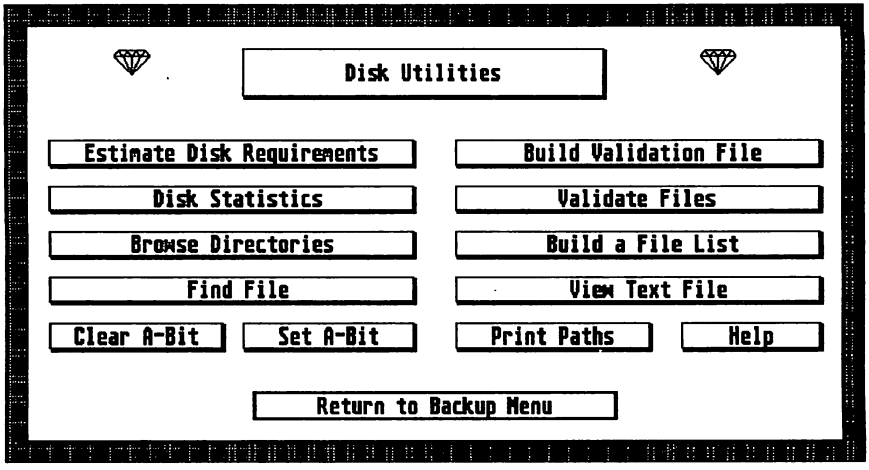
Use the Select Additional Include Masks for the Current Path option to enter wild card masks for files you want to include in the backup of the current path. Use the Select Additional exclude Masks for the Current Path option to enter wild card masks for files you want to exclude from the backup of the current path. You may enter an unlimited number of wild card include or exclude masks for each path. The designation of a wild card search mask is optional.

2.3 Disk Utilities

This option will take you to the Disk Utilities sub menu. Many useful utilities are available from this menu including:

Estimate Disk Requirements:

This option estimates the total number of floppy disks that will be required to complete a backup. All of the currently selected backup options are considered in calculating the requirements(i.e. incremental/split/masks etc.). This yields the exact number of disks required to complete the backup except when compression is selected. Although, there is no precise way to estimate the number of disks that a compressed backup will require, 60-65% of the uncompressed disk requirements is a good rule of thumb.



Disk Statistics:

Shows you all the vital information about your disk structure. Information shown includes partitioning information and free disk space.

Browse Directories:

Allows you access to the GEM file selector. Use this option to look around your hard drive partitions.

Create Validation File:

This is an extremely useful historical information file containing all file attributes (name, date, time, size, and attribute flags) and a 32 bit Cyclical Redundancy Check(CRC) or a 16 bit Checksums. Checksums are much faster and more than sufficient for most applications. If absolute validation integrity is essential, then CRCs will provide an extra measure of security with some cost in speed. Having an up to date validation file can protect you against possible file corruption by providing you the capability to check each files current CRC against it's true value.

After selecting **Create Validation File**, a GEM file selector will appear asking you to enter the name of the validation file. You may either select a new file name or append to an existing validation file. You will then be asked if you want to create a validation file from either the files' contained in the currently selected backup paths or from a set of floppy disks.

Validate Files:

Using a previously created validation file, you can validate files from the currently selected backup path or floppies. This function reads the files from the currently selected backup path(s) or from a floppy and performs a CRC check and compares it against the validation file. If a file is found to be corrupted, the program will notify you and place the details of the error in a file VALID.ERR. If a file is not found in the validation file, you are given the option of adding it. This option gives you the powerful capability of verifying the integrity of a backup saveset without actually restoring the files.

Build File List:

Allows you to build an ASCII file of the files contained on your hard disk or floppies. The file list contains the same information as if you had created a file list during a backup.

View Text File:

This option allows you to view the contents of an ASCII text file. A GEM file selector will appear allowing you to select the file to view.

Find File:

A powerful general purpose file finder. Select the drives you want to search and the file(s) you want to search for and select **FIND**. All forms of wild cards described above are valid.

Clear A-Bit / Set A-Bit:

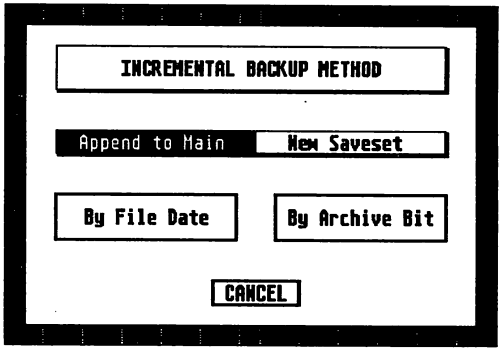
These options allow you to clear or set the archive bit on all files, subject to include and exclude masks, in the currently selected backup paths.

2.4 Backup Options

Full Backup \ Incremental:

Selecting **Full Backup** will backup all files in the designated backup directory path subject to the wild card search mask and the Backup Subdirectories\Files Only options. **Full Backup** will

probably be your default backup mode. Incremental backups are useful when only a small portion of your hard disk has changed since your last backup. Diamond Back II provides a choice of two methods to perform incremental backups: By Archive Bit and By Date and Time.



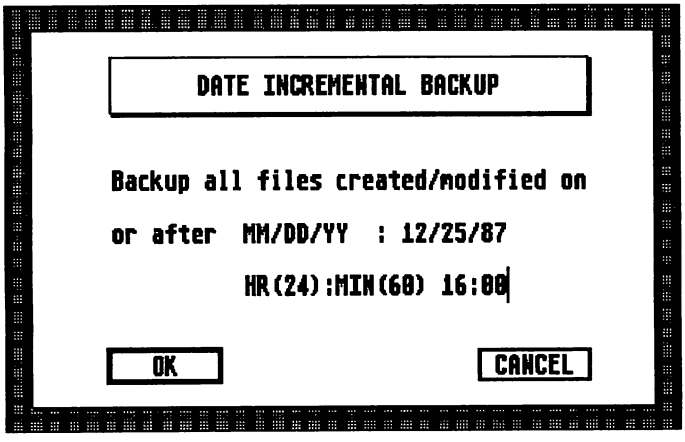
For either an Archive Bit or Date Incremental Backup, you may choose to append the incremental backup to the last disk of the main backup or start a new save set. If you choose to append the incremental backup to the main backup, then insert the last disk of the main backup when Diamond Back II asks you for disk number 1. If you choose to append the incremental backup to the main backup, you may still choose to have disks formatted during the backup. If you select format, after Diamond Back II is finished filling the last disk of the main backup, the remaining disks will be formatted prior to use.

Be careful when you do an incremental backup with the new save set option selected. You will be creating an independent **NEW** save set and all data will be lost from the disk you insert as disk number 1.

Diamond Back II fully supports the archive bit as implemented in TOS 1.4. When a files archive bit is set, this indicates the file is new or has been changed and it needs to be backed up. When incremental backup via archive bit is selected, Diamond Back II will backup all files in the selected drive:\path(s) that have the archive bit set. **WARNING: ONLY users on ROM based TOS 1.4 or above should use Archive bit incremental backup.** Previous versions of TOS do not reliably set the archive bit when a file has been modified.

Incremental backup by date will backup all files with a date

stamp on or after a certain date/time. If you choose **Incremental Backup by Date** then the input time date dialog will be displayed.



The format for the Incremental Backup date specification is

MM/DD/YY

Where **MM** = Month, **DD** = Day, and **YY** = Year.

The format for the time specification is :

HH:MM

Where **HH** = Hour and **MM** = Minutes.

For example, to backup all files created/modified on or after May 10, 1986 at 1:00 P.M. you would enter 05/10/86 as the Incremental Backup date and 13:00 as the time. To accept the entered date/time, position the mouse cursor on the OK button and click the left mouse button.

Subdirectories/Files Only:

The status of these buttons determine whether or not subdirectories beneath the selected path will be included in the backup. **Example:** if a backup path C:\PROG has a subfolder C:\PROG\WORK then **Subdirectories** will backup all the files in C:\PROG and C:\PROG\WORK. However, selecting **Files Only** will backup the files in the single folder C:\PROG.

Split Files:

Select **Split Files** if you want Diamond Back II to split a file between two disks if there is insufficient room on the current disk. Extremely large files will be split onto as many disks as are necessary. This is the most efficient option because all backup disks will be 100% filled and is highly recommended.

Selecting **No Split** will cause Diamond Back II to request a new disk if the next file will not entirely fit on the current disk. Diamond Back II uses a best fit algorithm to attempt to optimally fill each backup disk. If Diamond Back II encounters a file that will not fit on a single blank disk when the **No Split** option is selected, that file will be split onto as many disks as are necessary. After the file in question is completed, Diamond Back II will return to No Split mode.

Compress Files:

Selecting **File Compression** will cause the backup files to be compressed using a derivative of the Lemple-Ziv file compression technique. This is similar to the method used in archival programs like ARC or LZH but much faster and more efficient. **File compression** will reduce the number of disks required to complete the backup by 30 - 50%. Because of this reduction in disk requirements, **compressed backups are actually the fastest backup option.** Full 16 bit CRC'c are calculated on 16K blocks to guarantee data integrity. Files compressed with Diamond Back II are not directly usable from the backup floppy. You must decompress(restore) them using Diamond Back II before you can use them.

Selecting **No Compression** will backup the files in the designated backup path(s) without compression. This option will produce disks with files that are directly usable from the GEM desktop. Although Diamond Back II restore functions greatly ease the process of restoring files, you do not need Diamond Back II to restore uncompressed files. No compression is the default backup option.

Encrypt Files:

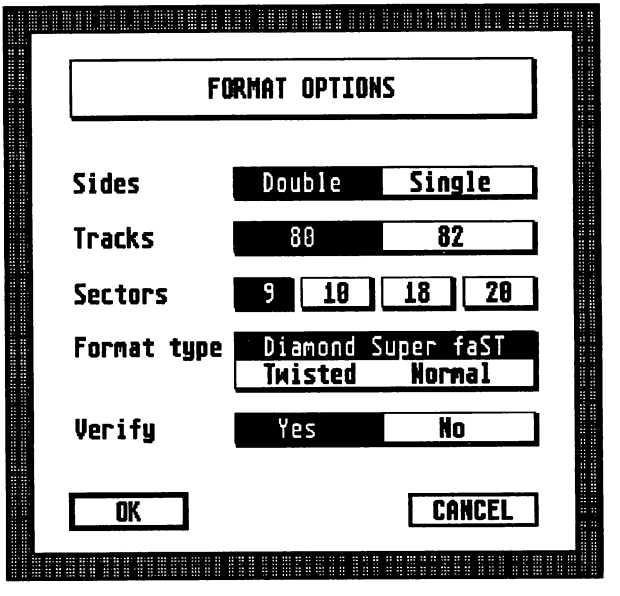
Selecting **No Encryption** will backup the files in the designated backup path without encryption.

If you select **File Encryption**, the encryption password input dialog will be displayed. Type in the file encryption password and accept the selection by selecting the OK button.

The file encryption option is included for backup security. The encryption algorithm used is extremely sophisticated and secure. It is important to note that the file encryption password is case sensitive, i.e. OREGON is not the same password as oregon or OrEgOn. **It is extremely important that you remember the exact encryption password, because you will not be able to properly restore your files without the correct password!**

Format Disks:

If you are going to use unformatted disks for the backup or want to format the backup disks in a different format, then select **Format Disks**. The Format Options menu will then be displayed. The available format options are: single or double sided; 80 or 82 tracks; 9, 10, 18, or 20 sectors per track; and normal, Super faST, or Twisted format. You must have a High Density disk drive to format disks with 18 or 20 sectors per track. The default format specification is double sided, 80 tracks, 9 sectors per track, and Super faST. Users of TOS 1.0 do not have access to Twisted formats.



Diamond Super faST format is a brand new disk formatter that produces absolutely the fastest disks for the Atari ST. The reading and writing performance of Diamond Super faST format disks is 20-25% faster than even than Twister formatted disks. The current algorithm implementation is currently restricted to 9 or 18 sectors per track.

The choice of the disk format is a compromise between disk capacity and disk reliability. The format option with the highest capacity is 82 tracks per side and 10 sectors per track. The most reliable disk format is 80 tracks per side and 9 sectors per track. Because of the importance of a high fidelity hard disk backup, the 80 tracks per side and 9 sectors per track format is **HIGHLY** recommended. It is also recommended that the Diamond Super faST or Twisted format option be selected. There is no sacrifice in reliability and they will significantly reduce the time required to complete the backup.

Select **No Format** if you have a group of preformatted disks to use for the backup. You do not have to erase files that are already on the disks and the preformatted disks can be different formats. This option is much faster than formatting each backup disk, especially if the disks were previously formatted with the Diamond Super faST or Twisted format option. If you run out of preformatted disks before the backup is completed, simply insert an unformatted disk and you will be given the option to format just that disk, or all the remaining disks.

Write Verify:

With **Write Verify** set, each file that is copied to floppy disk is reread to insure that it was copied correctly. **Write Verify** insures each file is copied correctly; **No Verify** copies each file much faster. This is a trade off between backup speed and backup security.

Because of the importance of a secure hard disk backup, we recommend using **Write Verify**. However, most persons are interested in spending as little time as possible backing up. There will generally be no problems using the **No Verify** if your floppy drives are properly maintained and you use the right kind of floppy disk for your drive. This means regularly cleaning the heads on your floppy drives and using **ONLY** certified double sided disks on double sided drives!

Backup Destination:

Diamond Back II supports backups to hard disk partitions. Select any number of paths and masks from different partitions and back them up to a specified partition (just as if you were backing up to a floppy disk). Select the backup destination partition by clicking on the appropriate drive button. You also may select how Diamond Back II reacts when it finds a file that already exists on your hard disk. You may either always skip the file(leaving the version on the destination partition intact), always overwrite the file(replacing it with the version from the source partition) or you can have Diamond Back II ask you what to do for each duplicate file.

You may also backup to a folder on another hard disk partition when doing hard disk to hard disk backups. Type the desired destination folder in the indicated editable text box of the Hard Disk Destination menu. The destination folder does not have to exist on the destination drive. The original directory tree structure will be recreated within the destination folder.

Example: You want all the selected backup paths from drive C to be backed up to a folder DRIVEC on partition E. You would select the paths on C you want to back up and then select **To HD Partition** from the Backup Options menu. Then you would select the Drive E button for the destination partition and type in DRIVEC as the optional destination path.

Backup Defaults:

The backup process may be completely automated by the saving and loading of backup configuration files. To save the current settings, select **Save** in the **Backup Defaults** box. A GEM file selector dialog will appear allowing you to specify the name of the backup configuration file. All the currently selected backup options will be saved, including all selected paths and wild card search masks. For your protection, information concerning the File Encryption status or password is not saved. To recall a specific backup configuration simply select **Load** and indicate the configuration file you want installed. Any number of distinct configuration files may be saved and recalled.

If you save a backup configuration file named **DIAMOND.INF** in the same directory Diamond Back II

resides, then the backup configuration contained in **DIAMOND.INF** will automatically be loaded when the program is started. If **DIAMOND.INF** does not exist then the standard default backup configuration will be used. Of course, you can still load and save as many other configuration files named whatever you want to do other specific backup tasks.

Create File Listing:

This option allows you to create a backup file listing. This listing contains complete information on all the program options, backup paths, and information on each file contained on each volume of the backup. If you select Yes, A GEM file selector dialog will appear to allow you to specify the name of the backup file listing. You may specify a new file list or append to an existing file list. **This option is highly recommended for it's usefulness in locating files for partial restore.**

Build Validation File:

The validation of files can be integrated into the normal backup and restore process through the use of Validation Files. If you select the option on backup a reference validation value will be calculated and stored for each backup file. You have the option of using either 16 bit Checksums or 32 Bit CRC methods. Checksums are much faster and more than sufficient for most applications. If absolute validation integrity is essential, then CRCs will provide additional security with some cost in speed.

After selecting **Create Validation File**, a GEM file selector will appear asking you to enter the name of the validation file. You may either select a new file name or append to an existing validation file. When selecting create validation files on backup when using compression, the validation calculated and stored is for the total output file including control bytes. You can then check the integrity of the archive without having to decompress the files. The original file CRC is maintained within the compressed file control byte structure for validation on restore.

Backup Save Sets:

There are three different ways of forming backup "save sets" from the selected drive/paths. A backup **"save set"** is defined as a collection of files/paths/partitions that are saved as and treated

as a single group. Selecting **Each Path** will create a save set for each specifically selected path, **Each Partition** will create a save set for all specifically selected paths on each drive partition, and selecting **All Partitions** will create a single save set for all selected paths on all partitions. Disk number 1 for each new save set will be requested each time a new save set is created during the backup process.

Each Partition will generally be the most used option because the most common way of organizing a backup is to maintain an independent backup saveset for each hard disk partition. The other options are included for maximum flexibility in the way you can organize groups of backup files. For instance, if you organize your work projects in seperate folders you could use the **Each Path** option to have an independent backup for each project. **All Partitions** is useful if you have information that you want archived together that physically resides on different hard disk partitions.

Example: If you have paths C:\, D:\WORK, and D:\TELECOM selected and choose the **Each Partition** then two save sets will be created. One save set will be created for all paths on drive C: and then disk 1 of the next save set will be requested for the two paths on drive D. If you had selected **Each Path**, then three separate save sets would be created (one for each path). If you had selected **All Partitions**, then a single save set would be created from the selected paths from all partitions.

Clear A-Bit:

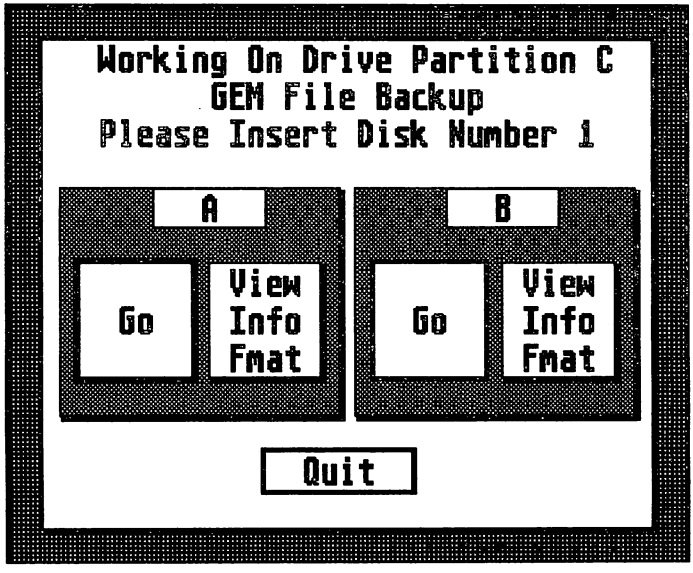
This user option allows you to specify whether you want the archive bit to be cleared during backups. Clearing the archive bit tells Diamond Back II that that file has been backed up and does not need to be backed up the next time an Incremental Backup is performed.

F:

This button toggles a Total Bytes Remaining "fuel gauge" displayed during the backup. This is a very useful visual indicator of the percentage of the total backup that has been completed. There will be a slight delay at the start of the backup while the total bytes to backup are calculated. TOS 1.0 users please see page 33 for FOLDRXXX considerations.

Do Backup / Cancel:

Before selecting **Do Backup**, it is suggested that you select **View Paths** from the backup options menu to verify all the paths that you selected to include in your backup. After you have verified the backup paths and selected the backup options, select **Do Backup** to begin the hard disk backup.

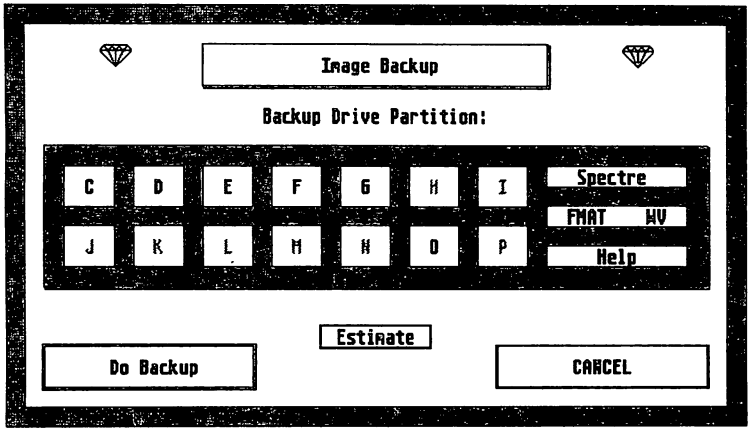


Each time a new disk is needed, the insert new disk dialog will appear. To continue the backup, insert a new disk and select Go. New disks may all be different formats and existing files do not have to be erased. You may also choose to view the current contents of a disk before continuing. This is useful to verify you are not overwriting disks with valuable data. Additional functions on the insert disk dialog include the Disk Information utility and format utility. When using a two drive system, you may use the automatic drive switching feature explained in the Tricks and Tips section.

If you decide to abort before beginning the backup, select Cancel and you will be returned to the main menu. You may also abort at anytime during the backup by pressing the keys **CONTROL** and **C** at the same time (usually denoted **CONTROL-C**) or by selecting Quit from the Insert New Backup Disk dialog.

3.0 Image Backup

Diamond Back II supports an intelligent image backup option for users who prefer image type backups. You also use this option to access the Spectre(tm) partition backup.



3.1 Gem Image Backup

Diamond Back II uses an extremely intelligent image backup routine that only backs up sectors that actually contain data. For example, if only 5 meg on a 16 meg partition contain data, you will only need 5 meg worth of backup disks. To get an estimate of the number of disks required for an Image backup, you can select the **Estimate** button from the Image Backup Dialog. In addition, you can restore an image backup to a DIFFERENT size partition, either larger or smaller! The backup status dialog will display the smallest partition size to which the image backup can be restored.

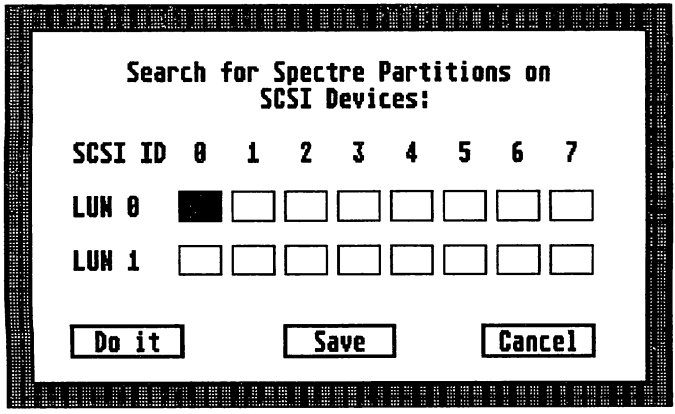
Image backups are a "snapshot" of exactly what your disk looks like at the time of the backup. They are very fast but there is no incremental backup capability with an image backup. Use image backups when you want to precisely duplicate the exact status of a hard disk partition at some point in time.

Unlike uncompressed file backups, Image Backup disks are not directly usable from the GEM desktop. **DO NOT** attempt to use TOS to look at Image Backup disks, you will corrupt TOS's disk buffer information. You must utilize Diamond Back II's Image Restore function to restore an Image backup.

To perform an image backup, simply select the drive partition you would like to backup and click on Do Backup. Each time a new disk is needed the insert new disk dialog will appear. When using a two drive system, you can use the automatic drive switching feature explained in the tricks and tips section. Additional options available for Image backups are **FMAT** and **WV**. Selecting **FMAT** allows you to format disks during the backup. The **WV** option allows you to turn write verify on and off.

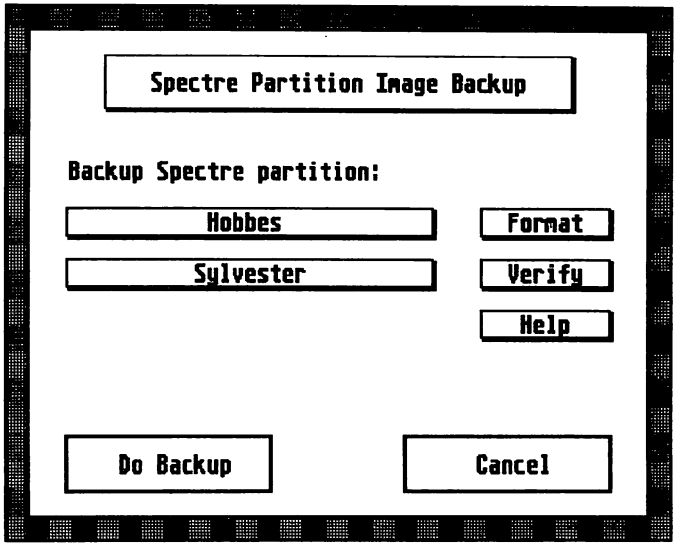
3.2 Spectre Image Backup

Diamond Back II offers full support for backing up and restoring Spectre(tm) partitions. You access this option from the Image Backup dialog. Unlike GEM Image backups, the Spectre Image Backup is a full Image Backup, so a 10 meg Spectre partition will take 10 meg worth of disks. Because it is a true image backup of multiple Macintosh file systems, **you cannot change partition sizes.** So a backup from a 10 meg partition can only be restored to another 10 meg Spectre partition. Although the backup is created on standard GEM disks, they are not usable by either GEM or while you are using Spectre GCR. You must use the Diamond Back's Spectre restore option to retrieve your Spectre backup data.



When you select Spectre Backup or Restore for the first time, a dialog with buttons representing SCSI Id's 0-7 and Lun's 0-1 will appear. Select the appropriate SCSI devices to tell Diamond Back where to look for your Spectre partitions. After making your selections you may select **Save** and the information will be saved to a file SCSI.INF. In future backup/restore

sessions Diamond Back II will read the information from SCSI.INF and look for Spectre partitions on the devices identified by the file. This feature saves a great deal of time over searching every SCSI device every time you do a Spectre Backup or Restore. If your hard disk SCSI ID/LUN configuration changes, simply delete SCSI.INF from your disk and you will be presented with the SCSI ID selection menu the next time you select Spectre Backup or Restore.



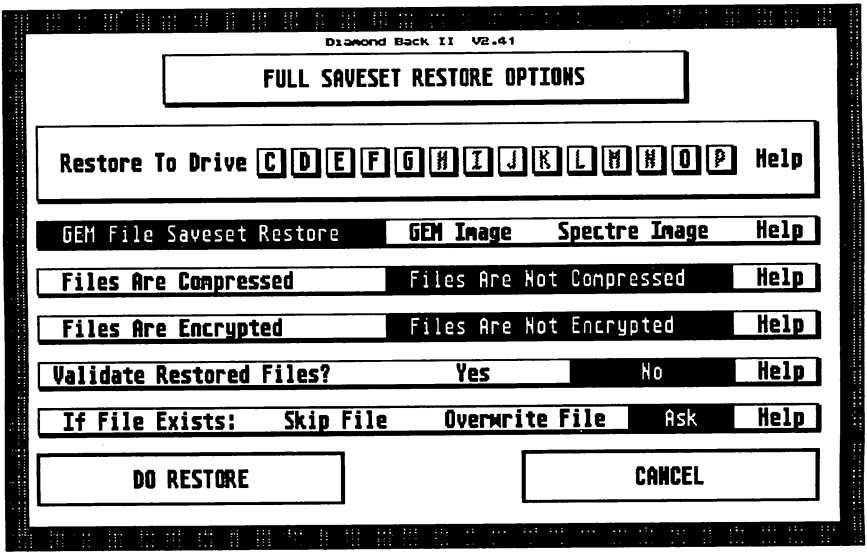
The two options available, **Format** and **Verify**, allow you to select formatting options and turn the write verify on and off. To start the backup, select the desired Spectre(tm) partition and click **Do Backup**. An alert will appear each time a floppy disk is needed. You can use the automatic drive switching feature if you have two floppy drives.

4.0 Restoring Your Hard Disk

You will inevitably need to restore some or all of a backup saveset to your hard disk. Diamond Back II provides a fast and flexible way to restore your files. If you are restoring files from a **GEM File backup**, then you can either perform a **Full Restore** or a **Partial Restore**. If you are restoring files from either a **GEM Image backup** or a **Spectre Image backup**, then you must perform a **Full Restore**.

4.1 Full Restore

Select **Full Restore** from the Diamond Back II Main Menu if you want to restore all the files contained in a backup save set to a particular hard drive partition. This option is used to completely restore a hard drive partition with files from either a GEM File, GEM Image, or Spectre Image backup save set.



You must tell Diamond Back II the type of backup that you are restoring from. If you are restoring a file backup, select **GEM File Saveset Restore.** Select **GEM Image** if you are restoring an image backup, or select **Spectre Image** if you are restoring a Spectre partition.

To select the drive partition that all the files will be restored to, place the mouse cursor on the desired drive button and click the left mouse button. The selected destination drive will appear in reverse video. The original directory tree structure contained in the backup will be recreated on the selected destination drive.

If the files to be restored were backed up using either compression or encryption, then they need to be decompressed or decrypted during the restore process. Select **Files Are Compressed** if the restore files were backed up using the backup file compression option. If the restore files are not compressed, then select **Files Are Not Compressed.**

If the restore files were backed up using the backup file encryption option, select **Files Are Encrypted**. The Input Encryption Password dialog will then be displayed allowing you to enter the file encryption password that was used to encrypt the files. It is extremely important that you enter the **SAME** password that was used to encrypt the files, otherwise the restored files will be useless. If the restore files are not encrypted, then **Files Are Not Encrypted** should be selected.

If you created a validation file during the backup process or from the disk utilities options, you may use that file to validate all the files during the restore process. Use this option if you want to be 100% confident of the integrity of the restored files. If you choose to validate files on restore, a validation value will be calculated for each restored file and compared with the stored reference value. If there are any validation errors detected you will be notified. Details concerning validation errors will be written to the file **VALID.ERR.**

With a GEM File Saveset Restore, the files are added to the files that already exist on that partition. You may tell Diamond Back II to overwrite, skip, or ask you what to do when a restored file already exists on the destination hard drive during a GEM File Saveset Restore. However, it is important to note that any files that already exist on a destination partition will be **LOST** if you perform either a GEM or Spectre Image Restore.

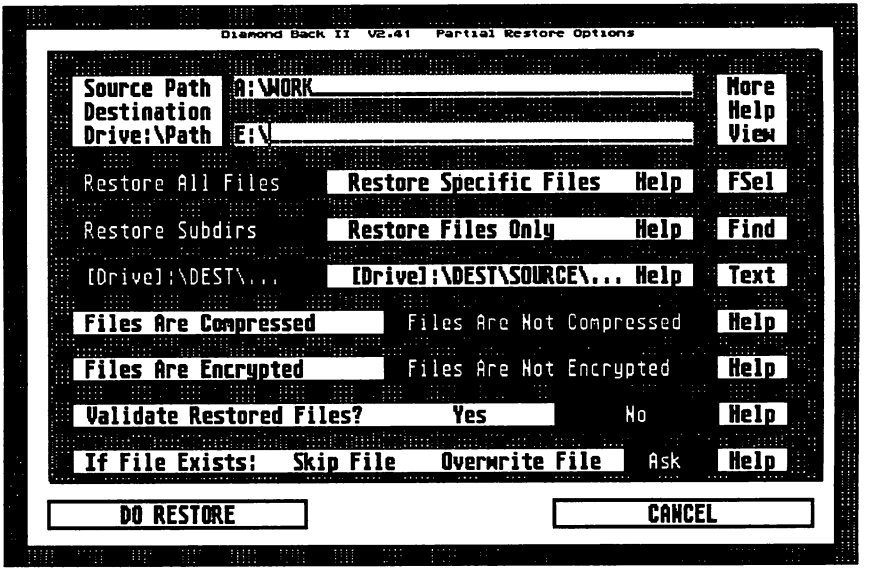
Do Restore \ Cancel:

After you have designated the destination drive and selected the restore options, select **Do Restore** to begin the Full Restore. Each time a new restore disk is needed, an alert will appear, or, when using a two drive system, you can use the automatic drive switching feature.

If you decide to abort before beginning the Full Restore, select **Cancel** from the Full Restore Options Menu and you will be returned to the Diamond Back II Main Menu. You may also abort at anytime during the restore by pressing the keys **CONTROL-C** at the same time or by selecting **Quit** from the Insert New Restore Disk dialog when prompted for a new disk.

4.2 Partial Restore

Select Partial Restore from the Diamond Back II Main Menu if you only want to restore part of the files contained in a GEM FILE backup save set. You may restore specific paths or files to their original or new directories on your hard disk.



You have access to three general file utilities to aid your selection of files and paths to restore: **FSel**, **Text**, and **Find**. **FSel** provides access to the GEM file selector to allow you to view the contents of restore disks and **Text** allows you to view the contents of any text file. This is especially useful for viewing the contents of your backup file list from within Diamond Back. Selecting **Find** will give you access to the general purpose file finding utility. This function is useful to find specific files or your file list.

Partial Restore Source Path:

The directory path that will be searched for restore files is designated in the box labeled **Source Path**. Select A:\ as the restore source path to restore files from all folders contained on all disks of the backup save set subject to the other restore options selected. If you only wanted to restore files from a particular backup folder, you would type in the name of the

desired folder following the A:\. For example, if you only wanted to restore files from the PROG folder you would enter A:\PROG as the restore source path. Wild cards are not allowed in the specification of the source directory path.

Partial Restore Destination Path:

The destination drive:\path determines where the files will be restored to. If you want the backup files restored to drive partition C, you would enter C:\ as the destination drive:\path. The :\ following the drive specification is mandatory. If you wanted to restore the files to the EDITOR directory on drive D, you would enter D:\EDITOR as the destination directory path. Diamond Back II will create the EDITOR folder on drive D if it does not already exist. The original directory tree structure will be created beneath the destination drive:\path if that option is selected. Note that if the [Drive]:\DEST\SOURCE option is selected and you specify A:\GRAPHICS as the source path and C:\GRAPHICS as the destination, then the files will actually be restored to C:\GRAPHICS\GRAPHICS. Wild cards are not allowed in the specification of the destination directory path.

Multiple Source\Destinations Paths:

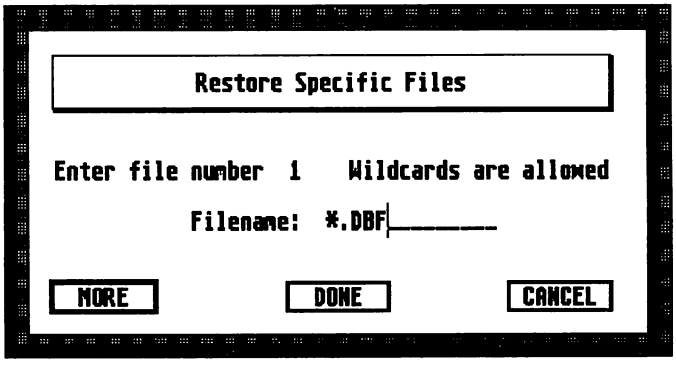
If you want to restore more than one specific directory path in a single pass, select **More** from the Partial Restore Options Menu. The currently entered source and destination paths will be checked for format validity and you will be returned to the Partial Restore Options Menu where additional source and destination paths may be selected. In addition, the destination path for each source path may be different. If you want to view the restore source and destination paths that you have entered, select **View** from the Partial Restore Options Menu.

Restore All Files/Specific Files:

You may choose to restore all the files in the selected source paths or just specific files. If **Restore All Files** is selected, then all files in the source path will be restored to the destination path.

There are many instances when you will only want to restore a subset of the files in a particular folder or path. To accomplish this, select the **Specific Files** option. The backup files listing is particularly useful to quickly locate and identify

specific files to be restored. The Specific Files input dialog will then be displayed.



Enter the name of the specific file or group of files that you want to restore. The wild card characters * and ? are allowed in the file specification. Drive or path specifications are not allowed, these are set by the input source drive:\path. Specific files designations apply to all the selected restore source paths. After inputing each group of specific file(s), you have three options: **MORE**, **DONE**, and **CANCEL**.

Select **MORE** if you want to specify another specific file or group of files to be restored. Select **DONE** if you have finished specifying all the specific files to be restored. You will be returned to the Partial Restore Options Menu with Specific Files selected. If you want to abort the selection of the Specific Files *option*, then select **CANCEL** and you will be returned to the main menu with Restore All Files selected.

Restore Subdirectories / Files Only:

The status of this option determines whether or not files in subdirectories beneath the source path will be restored to the destination path. For example, if the source path is A:\EDITOR and this folder contains a subfolder A:\EDITOR\WORK then selecting **Restore Subdirectories** will restore all files in A:\EDITOR and all the files in A:\EDITOR\WORK. However, selecting **Files Only** will only restore the files in the single folder A:\EDITOR.

[Drive]:\DEST\ and [Drive]:\DEST\SOURCE

This option pair determines how Diamond Back II will combine the paths specified in the source and destination path specifications. You can use this option to very flexibly specify where your files will be restored. You can restore your files to the same structure as they came from or a completely new directory structure.

Selecting **[Drive]:\DEST** will restore all files from the specified source path to the specified destination path eliminating the directory levels of the source path. The directory structure below the specified source path will be recreated below the specified destination path.

Example: Source Path: A:\WORK\PROG\
Destination Path : D:\PROJECT\

All the files in the directory A:\WORK\PROG\ will be restored to the directory D:\PROJECT. All Subdirectories of A:\WORK\PROG\ will be recreated below D:\PROJECT\, so the directory A:\WORK\PROG\TOOLS\ will be restored to D:\PROJECT\TOOLS\.

Use this form if you specified a destination subdirectory when doing a hard disk to hard disk backup. If you backed up your C partition to G:\CDRIVE then to restore files to your C drive in the same folders they came from, you would select **[Drive]:\DEST** with G:\CDRIVE\ as the source and C:\ as the destination.

Selecting **[Drive]:\DEST\SOURCE** will restore all files from the specified source path to the specified destination path recreating the entire source directory structure beneath the destination path.

Example: Source Path: A:\WORK\PROG\
Destination Path : D:\PROJECT\

All the files in the directory A:\WORK\PROG\ will be restored to the directory D:\PROJECT\WORK\PROG. Similarly the directory A:\WORK\PROG\TOOLS\ will be restored to D:\PROJECT\WORK\PROG\TOOLS\.

Decompression and Decryption:

If the files to be restored were backed up using compression and/or encryption, then they need to be decompressed or decrypted during the restore process. Select **Files Are Compressed** if the restore files were backed up using the backup file compression option and the files will be decompressed as they are restored. If the restore files are not compressed, then select **Files Are Not Compressed.**

If the restore files were backed up using the backup file encryption option, select **Files Are Encrypted.** Enter the file encryption password that was used to encrypt the files. It is extremely important that you enter **EXACTLY THE SAME** password that was used to encrypt the files, otherwise the files will not be restored properly. Remember that the password is case sensitive. If the restore files are not encrypted, then **Files Are Not Encrypted** should be selected.

Validate Restored Files:

If you created a validation file during the backup process or from the disk utilities options, you may use that file to validate all the files during the restore process. Use this option if you want to be 100% confident of the integrity of the restored files. If you choose to validate files on restore, a validation value will be calculated for each restored file and compared with the stored reference value. If there are any validation errors detected you will be notified. Details concerning validation errors will be written to the file **VALID.ERR.**

Do Restore \ Cancel:

Before you select **Do Restore**, it is suggested that you select **View** to verify the chosen source and destination directory paths. After you have verified the source path(s), destination path(s), and have selected the desired partial restore options, select **Do Restore** to begin the Partial Restore. Each time a new restore disk is needed, an alert will appear, or when using a two drive system, you can use the automatic drive switching.

If you decide to abort before beginning the Partial Restore, select **Cancel** from the Partial Restore Options Menu and you will be returned to the Diamond Back II Main Menu. You may

also abort at any time during the restore by pressing the keys CONTROL-C at the same time or by selecting **Quit** from the Insert New Restore Disk dialog when prompted for a new disk.

5.0 TRICKS AND TIPS

Automatic Disk Switching:

Diamond Back II allows for automatic continuation to the next available disk for both backup and restore when two floppy drives are available. If you have two drives and drive A is in use backing up or restoring, you may switch the disk in drive B and press the keyboard key B to indicate that the drive is ready (and vice versa). If you do so, the program will automatically continue on the indicated drive without being prompted for a new disk. You will still be prompted for the next disk if one of the following situations occur:

A) No valid key was pressed (e.g. if A is in use then only B is a valid next disk key and vice versa).

B) The media in the indicated drive has not changed, e.g. A is in use and you pressed B but never switched the disk in drive B. This is a safety feature so that you can never accidently over write one of your backup disks.

C) You only have one floppy drive.

Default Selections:

[A] is the default button on the insert floppy dialog when you have only one floppy, so all you have to do is insert a disk and hit return. If you are using two floppy drives, then the disk not previously used is the default disk (i.e. you are backing up to floppy A and did not use the automatic continuation feature, then when the disk request dialog appears drive B will be indicated as the default selection).

When entering paths in the Partial Restore Menu, **More** is the default response. So after entering a source and destination path all you have to do is press return to enter additional partial restore paths.

Static Files and Extra Security:

Most hard disks contain a large number of static, unchanging files like spreadsheets, graphics programs, editors etc., and a smaller number of new and temporary files. Consider making your main backup of the static files in compressed mode to save disk space and then maintain your hard disk backup with fast incremental backups.

If absolute file security is required, then consider using File Encryption **AND** File Compression. This combination will create a virtually unbreakable backup.

Automatic Disk Error Recovery:

Unfortunately disk errors are a fact of life. However, unlike death and taxes you have Diamond Back to protect you. Extensive automatic error recovery has been programmed into every program function. When a disk error occurs a standard Diamond Back error dialog will appear:

DOS ERROR XXX
Performing Function YYY
on File ZZZ at Location XYZ
[Try Again] [Continue] [Quit]

When an error occurs **ALWAYS** select **TRY AGAIN** at least three times (especially on restore) because many many "soft CRC" errors can be recovered that way. If the error is not recovered by Trying Again, then **ALWAYS** select **CONTINUE.** Diamond Back's automatic error recovery will take over and recover as much of the file as possible on restore or if the error was on Backup the entire disk will be recovered to a fresh disk so that your Backups are not contained on disks that are known to have errors.

After selecting **CONTINUE** from a disk error while backing up, follow the on screen prompts for when and where to insert the damaged disk and new disk. To minimize the possibility of confusion, all error recovery occurs on the drive where the error occurs. This is designed to protect you by making you explicitly acknowledge when you insert the new and damaged disks. This is the only function in Diamond Back that only a single floppy drive is allowed to be used.

The **Quit** option is provided for Disk Full errors or for extremely desperate situations. It is generally never a good idea to select **Quit**. A lot of careful work went into the error recovery code, let Diamond Back do the job of recovery for you.

The most common errors are read or write errors due to defective media. The bottom line is that sometimes disks do go bad. There are a number of simple measures you can take to protect yourself against such occurences:

1) Maintain at least 2 full sets of backups.

2) Always format your disks with verify on

3) Backup with Write Verify turned on.

4) Spend the extra cents to get name brand Double Sided disks for the extra security they provide.

and of course.....

5) Backup your hard disk frequently!

Use the Backup File Listing:

Use the file listing created during the backup to quickly locate the specific files and directories to be restored. You may then start the restore with the first volume that contains a file you want. For example, if your backup contains 20 disks and the directory you want to restore begins on volume 14, then insert volume 14 when prompted for the first restore disk. The program will display a dialog that says "This is volume 14, I was expecting volume 1, Do you want to [CONTINUE][TRY ANOTHER DISK]". Select CONTINUE to begin the restore.

Restore from any GEM disk:

Diamond Back II file backups produce 100% GEM compatible files that can be used normally from the desktop. As a result, Diamond Back II allows you to restore from ANY GEM compatible disk, not just backup volumes written with Diamond Back II. However, because Diamond Back II did not write them, it will not know when to stop asking for disks. You will have to manually quit from the disk prompt dialog.

Memory Considerations for 512K users:

Although Diamond Back II can perform in as little as 125K of free memory, it is designed to make optimal use of the available resources. This means(and is especially true for 512K users) that the more free memory you have the faster your backup will go. It is therefore recommended that 512K users disable all desk accessories before running Diamond Back II. Users with 1024K or greater memory need not be concerned.

High Density Floppy Support:

All program functions support the use of 1.44 meg high density floppies. The new formatting options of 18 and 20 sectors per track can only be used on these high density drives. Because of their large capacity and fast transfer rate(twice as fast as normal floppies) these drives are worth seriously considering adding to your system.

FOLDRXXX.PRG and TOS 1.0:

TOS 1.0 has a serious bug effecting hard disk users known as the "40 folder bug". The operating system maintains a pool of memory used to store information about the directory structure when a folder is accessed. TOS 1.0 has a serious bug that causes this memory pool to become corrupted if more than 40 folders are accessed in a single operating session. This is a very dangerous bug that will result in loss of data if it occurs. Atari Corporation has distributed a fix for the "40 folder bug" called FOLDRXXX.PRG. This program adds additional memory to the operating system pool to reduce the risk of the bug occuring.

To guarantee the highest fidelity operation possible Diamond Back II does not steal and replace any system vectors. Custom routines are used instead of the system calls where the functionality of the system call is deficient. However, the system calls are never replaced within the system. Therefore, if you still have TOS 1.0 you will need to use FOLDRXXX.PRG. **TOS 1.0 users should ALWAYS have FOLDRXXX.PRG active with as many extra folders as your memory allows.** Oregon Research Associates **HIGHLY** recommends that all TOS 1.0 users upgrade to TOS 1.4. The elimination of the 40 folder problem and the significant increase in hard disk performance makes it an essential investment.

6.0 Utility Programs

DFORMAT.PRG and DFORMAT.ACC:

Provided in both PRG and ACC form, this program gives you the Diamond Back II formatter in a stand alone form. Diamond Back II automatic disk switching is implemented for multiple drives. All the standard formatting options described earlier are available. Additional features include: 1) Erase a previously formatted disk, also known as soft formatting. 2) Write a MS-DOS boot sector to a previously formatted disk. 3) Format disks that are compatible with the Apple File Exchange utility on Apple Macintosh II's with FDHD drives. These are regular ST disks with special modifications to allow the Apple File Exchange to read them.

DFIND.PRG and DFIND.ACC:

Provided in both PRG and ACC form, Diamond Find is a powerful general purpose file finding utility. Select the drives you want to search and the file(s) you want to search for and select FIND FILE. All forms of wild cards described in the Diamond Back II manual are valid(ST and UNIX) and you can also specify that the output be sent to a file.

COLDBOOT.PRG:

This program will cold boot your computer. This is equivilent to you turning the power off on your computer and turning it back on.

7.0 Technical Assistance

There are many means for you to obtain technical assistance. The primary and most redily available means are the online help system and this manual. **PLEASE READ THIS MANUAL VERY CAREFULLY BEFORE YOU CALL.**

For general questions there is a Diamond Back users support topic in the ST board on Genie(Page 475 Item 1). This area is where Diamond Back II users gather to discuss and help each other with various aspects of Diamond Back II. The Diamond Back forum is Category 2 Topic 42. Please call 1-800-638-9636 for Genie membership information.

If you need general direct product support you can get it immediately by:

1) Calling Oregon Research at (503) 620-4919

2) You can e-mail me directly(in order of preference) at:
Genie: B.LUNESKI1
Usenet: boblu@tekgen.BV.TEK.COM
Compuserve: 76635,2310

To help us serve you better, please be prepared to provide your user registration number and the information contained on Diamond Back II problem report form.

We pride ourselves on providing the best user support in the disk utility business. To help us serve you better, we ask that you follow the procedure below before contacting us if you have a problem or believe that you have found a bug. **If you contact us with a problem before you have done this, then we will ask you to complete the procedure.**

The following support sequence will solve many problems by themselves and provide us with the necessary information to help you.

1) Remove **ALL** Auto Folder programs and ACC's and disable **ALL** disk caching. This includes the ICD cache contained in their hard disk driver software and **ESPECIALLY** ICD's COPYFIX.PRG. **The ONLY Auto folder program or ACC that should remain active is FOLDRXXX if you are using TOS 1.0.**

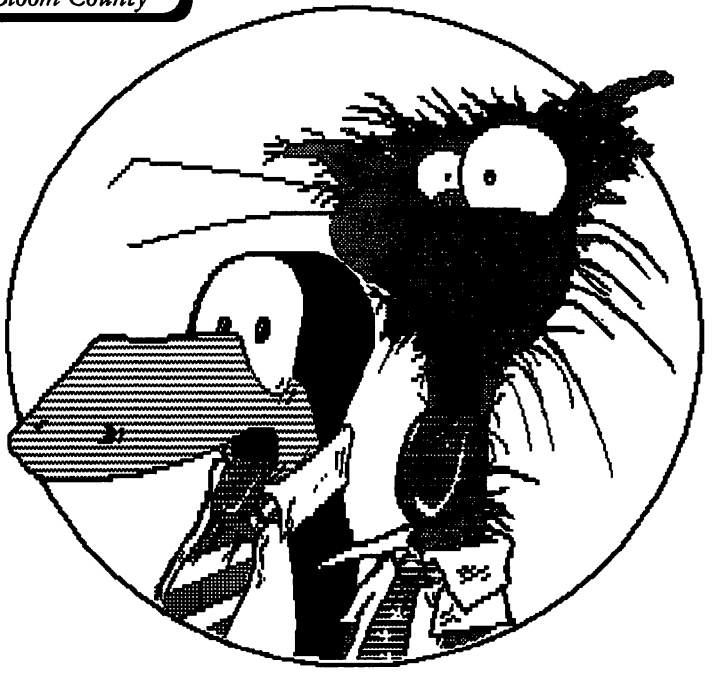
2) Precisely duplicate the actions that resulted in the problem, being careful to note and record the exact sequence of user actions. If you are doing a File backup, then save the configuration file before you say Do Backup and choose to create a file listing during the backup.

3) If you cannot duplicate the problem, then add ONE Auto folder program or ACC at a time until you discover the conflicting program. All of Diamond Back II is written 100% by the rules and NO system vectors are stolen or replaced, so if there is a conflict it is as a result of a poorly written ACC or Auto folder program.

4) If the problem still occurs, then fill out the Diamond Back Problem report form below adding the information that you recorded in 2) and forward the Problem Report Form, Saved Configuration File, and File List(if relevant) to us.

Each problem report that is received after following the above procedure will be immediately investigated and we will personally contact you with a resolution to your problem. We will do everything in our power to assist you with any problems that you may have.

Opus and Bill the Cat from Bloom County



The Oregon Research Technical Assistance Staff

Oregon Research Associates

Diamond Back II Problem Report Form

Name: _____ Registration Number: _____

Hardware:
Model: Memory Upgrade: _____

Number and Brand of Floppy Drives: _____

Hard Disk Model: _____

Hard Disk Host Adapter: _____

Hard Disk Driver Version Number: _____

Other Peripherals: _____

Software:
Auto Folder Programs: _____

_____

Accessories: _____

_____

Precise Description of Problem: _____

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About the Author:

Bob Luneski is a Senior Statistician for Tektronix Osciliscope Group in Beaverton, Oregon USA. He has been programming various mainframe and micro computers for over fifteen years. This project is a result of his desire to provide the finest software possible for a great micro computer: the Atari ST. When he is not working or programming on one of his ST's, Bob enjoys playing guitar, hiking, fishing, and camping with his wife, Jo, and four year old son David. A new addition to the family is expected in January 1992. (Go Ducks!)

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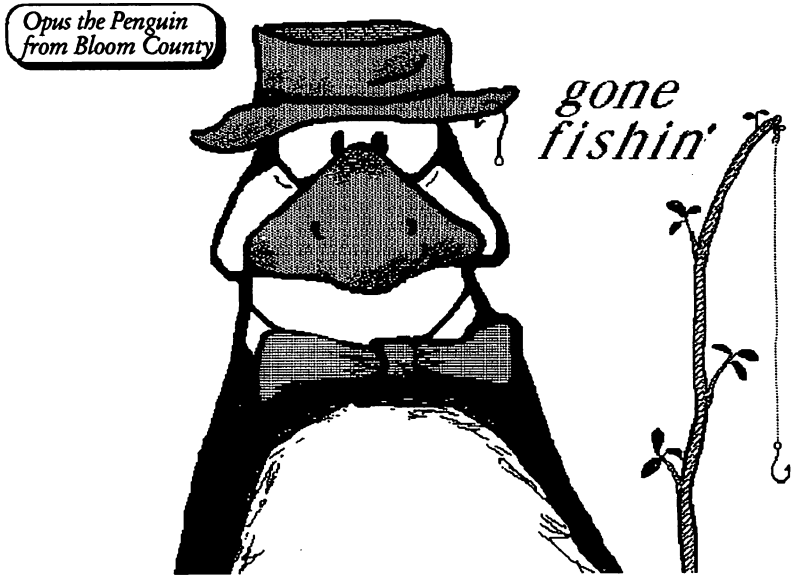
We are a small group of Atari ST enthusiasts who are dedicated to providing Atari ST users with the finest quality software available for **ANY** computer. Combined with our commitment to quality software is our 100% commitment to quality software support. If this sounds good to you and you have a quality software project that you feel has benifit for the Atari ST community, then send us a sample of your work or give us a call. We are waiting to hear from you!

"The True Meaning of Oregon Research"



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- Extremely **FAST!** In fact, the fastest for the Atari ST!
- **EASY** to use **100% GEM** user interface with on line help
- Backup/Restore **ANY** number of drive partitions, directory paths, single directories, or files in a single pass
- Very Flexible **Full** or **Partial Restore** options
- **Wild card** masks to include or exclude files or paths
- **Incremental Backups** by date/time or archive bit(TOS 1.4)

- **Load/Save** custom backup **configurations**
- Preformatted disks do not have to be the same type
- File **compression** and **encryption** available **(VERY FAST!!!)**
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- Automatic drive switching during all program functions
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Extra Special Features:

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- **Full support for High Density 1.44+ meg floppies!!**
- **Image backup option only backs up sectors with data!!**
- **Restore partition images to different size partitions!!**
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- **Bonus Utility Programs INCLUDED!!**

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Suggested Retail Price: $49.95

Diamond Back II

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